

What is claimed is:

Suit
A-15

1. A robot system comprising:
a movable arm including a plurality of links connected by joints and
controlled by a robot controller having a software processing function; and
a tool unit mounted on a distal end of said movable arm, and having an
effecting end biased with respect to a final rotational axis of said movable arm
and directed to said final rotational axis.

2. A robot system according to claim 2, wherein said movable arm
includes a wrist and said final rotational axis is provided at said wrist.

3. A robot system comprising:
a movable arm including a plurality of links connected by joints and
controlled by a robot controller having a software processing function; and
a tool unit mounted on a distal end of said movable arm and having an
effecting end and a variable axis for varying a position or a direction of said
effecting end with respect to a final rotational axis of said movable arm.

4. A robot system according to claim 3, wherein said variable axis
includes a linear axis.

5. A robot system according to claim 4, wherein said linear axis allows
said effecting end to move perpendicularly or parallel to said final rotational
axis.

6. A robot system according to claim 3, wherein said variable axis includes a rotary axis.

7. A robot system according to claim 3, wherein a linear axis and a rotary axis are provided, each functioning as said variable axis.

8. A robot system comprising:

a movable arm including a plurality of links connected by joints and controlled by a robot controller having a software processing function; and

a tool unit mounted on a distal end of said movable arm, and having an additional rotation axis biased with respect to a final rotational axis of said movable arm and an effecting end biased with respect to said additional rotation axis and directed to said additional rotation axis.

9. A method of machining a cylindrical workpiece with a robot system comprising a movable arm including a plurality of links connected by joints and controlled by a robot controller having a software processing function, a tool unit mounted on a distal end of said movable arm, and having an effecting end biased with respect to a final rotational axis of said movable arm and directed to said final rotational axis, said method comprising the steps of:

(a) arranging the workpiece so that a central axis of the workpiece is aligned with the final rotational axis of said movable arm; and

(b) rotating said final rotary axis to perform machining on the workpiece.

10. A robot system according to claim 9, wherein said movable arm

includes a wrist and said final rotational axis is provided at said wrist.

11. A method of machining a pipe-like workpiece with a robot system comprising a movable arm including a plurality of links connected by joints and controlled by a robot controller having a software processing function, and a tool unit mounted on a distal end of said movable arm and having an effecting end and a variable axis for varying a position or a direction of said effecting end with respect to a final rotational axis of said movable arm, said method comprising the steps of:

(a) arranging the workpiece so that a central axis of the workpiece is aligned with the final rotational axis of said movable arm; and

(b) rotating said final rotary axis to perform machining on the workpiece.

12. A method of machining a cylindrical workpiece according to claim 11, wherein said variable axis includes a linear axis.

13. A method of machining a cylindrical workpiece according to claim 12, wherein said linear axis allows said effecting end to move perpendicularly or parallel to said final rotational axis.

14. A method of machining a cylindrical workpiece according to claim 11, wherein said variable axis includes a rotary axis.

15. A method of machining a cylindrical workpiece according to claim 11, wherein a linear axis and a rotary axis are provided, each functioning as

said variable axis.

16. A method of machining a pipe-like workpiece with a robot system comprising a movable arm including a plurality of links connected by joints and controlled by a robot controller having a software processing function, and a tool unit mounted on a distal end of said movable arm and having an effecting end and a variable linear axis for varying a position of said effecting end with respect to a final rotational axis of said movable arm, said method comprising the steps of:

(a) arranging the workpiece so that a central axis of the workpiece is aligned with the final rotational axis of said movable arm; and

(b) rotating said final rotational axis and driving said variable linear axis in synchronism with the rotation of said final rotational axis to perform a saddle-like cutting or forming a hole on the workpiece.

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